

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/520,780
Source: PU
Date Processed by STIC: 3/20/06

ENTERED



PCT

RAW SEQUENCE LISTING

DATE: 03/20/2006

PATENT APPLICATION: US/10/520,780

TIME: 12:24:27

Input Set : E:\425uspc.app.txt

Output Set: N:\CRF4\03202006\J520780.raw

```

4 <110> APPLICANT: Fedida, David
5 Steele, David
7 <120> TITLE OF INVENTION: MUTATIONS OF VOLTAGE-GATED ION CHANNELS
8 THAT ALLOW THEM TO EXPRESS A VOLTAGE-INDEPENDENT PHENOTYPE
9 AND AN IMPROVED METHOD TO USE THE SAME
12 <130> FILE REFERENCE: 480102.425USPC
C--> 14 <140> CURRENT APPLICATION NUMBER: US/10/520,780
C--> 15 <141> CURRENT FILING DATE: 2005-01-10
17 <150> PRIOR APPLICATION NUMBER: US 60/395,272
18 <151> PRIOR FILING DATE: 2002-07-12
20 <160> NUMBER OF SEQ ID NOS: 13
22 <170> SOFTWARE: FastSEQ for Windows Version 4.0
24 <210> SEQ ID NO: 1
25 <211> LENGTH: 45
26 <212> TYPE: DNA
27 <213> ORGANISM: Homo sapiens
29 <400> SEQUENCE: 1
30 atcctccaag tcatccaact ggtccgggtg ttccaaatct tcaag 45
32 <210> SEQ ID NO: 2
33 <211> LENGTH: 44
34 <212> TYPE: DNA
35 <213> ORGANISM: Homo sapiens
37 <400> SEQUENCE: 2
38 ttgaagattg gaacaccccg accagttgga tgacttggag gatg 44
40 <210> SEQ ID NO: 3
41 <211> LENGTH: 33
42 <212> TYPE: DNA
43 <213> ORGANISM: Homo sapiens
45 <400> SEQUENCE: 3
46 attgccctgc ctgtggacgt catcgtctcc aac 33
48 <210> SEQ ID NO: 4
49 <211> LENGTH: 33
50 <212> TYPE: DNA
51 <213> ORGANISM: Homo sapiens
53 <400> SEQUENCE: 4
54 ttggagacga tgacgtccac aggcagggca atg 33
57 <210> SEQ ID NO: 5
58 <211> LENGTH: 159
59 <212> TYPE: PRT
60 <213> ORGANISM: Homo sapiens
62 <400> SEQUENCE: 5
63 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Ile Ala Glu Gln Glu Gly Asn
64 1 5 10 15

```

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65 Gln Lys Gly Glu Gln Ala Thr Ser Leu Ala Ile Leu Arg Val Ile Arg
66          20          25          30
67 Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly
68          35          40          45
69 Leu Gln Ile Leu Gly Gln Thr Leu Lys Ala Ser Met Arg Glu Leu Gly
70          50          55          60
71 Leu Leu Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser Ser Ala
72 65          70          75          80
73 Val Tyr Phe Ala Glu Ala Glu Glu Ala Glu Ser His Phe Ser Ser Ile
74          85          90          95
75 Pro Asp Ala Phe Trp Trp Ala Val Val Ser Met Thr Thr Val Gly Tyr
76          100         105         110
77 Gly Asp Met Tyr Pro Val Thr Ile Gly Gly Lys Ile Val Gly Ser Leu
78          115         120         125
79 Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile
80          130         135         140
81 Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gly Glu
82 145         150         155
84 <210> SEQ ID NO: 6
85 <211> LENGTH: 160
86 <212> TYPE: PRT
87 <213> ORGANISM: Mus Musculus
89 <400> SEQUENCE: 6
90 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Ala Glu Lys Pro Glu Asp
91 1          5          10          15
92 Ala Gln Gln Gly Gln Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile
93          20          25          30
94 Arg Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys
95          35          40          45
96 Gly Leu Gln Ile Leu Gly Gln Thr Leu Lys Ala Ser Met Arg Glu Leu
97          50          55          60
98 Gly Leu Leu Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser Ser
99 65          70          75          80
100 Ala Val Tyr Phe Ala Glu Ala Asp Glu Arg Asp Ser Gln Phe Pro Ser
101          85          90          95
102 Ile Pro Asp Ala Phe Trp Trp Ala Val Val Ser Met Thr Thr Val Gly
103          100         105         110
104 Tyr Gly Asp Met Val Pro Thr Thr Ile Gly Gly Lys Ile Val Gly Ser
105          115         120         125
106 Leu Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val
107          130         135         140
108 Ile Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gly Glu
109 145         150         155         160
112 <210> SEQ ID NO: 7
113 <211> LENGTH: 161
114 <212> TYPE: PRT
115 <213> ORGANISM: Homo sapiens
117 <400> SEQUENCE: 7
118 Pro Tyr Phe Ile Thr Leu Gly Thr Asp Leu Ala Gln Gln Gln Gly Gly

```

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119 1          5          10          15
120 Gly Asn Gly Gln Gln Gln Gln Ala Met Ser Phe Ala Ile Leu Arg Ile
121          20          25          30
122 Ile Arg Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser
123          35          40          45
124 Lys Gly Leu Gln Ile Leu Gly His Thr Leu Arg Ala Ser Met Arg Glu
125          50          55          60
126 Leu Gly Leu Leu Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser
127 65          70          75          80
128 Ser Ala Val Tyr Phe Ala Glu Ala Asp Glu Pro Thr Thr His Phe Gln
129          85          90          95
130 Ser Ile Pro Asp Ala Phe Trp Trp Ala Val Val Thr Met Thr Thr Val
131          100         105         110
132 Gly Tyr Gly Asp Met Lys Pro Ile Thr Val Gly Gly Lys Ile Val Gly
133          115         120         125
134 Ser Leu Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro
135          130         135         140
136 Val Ile Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Asn
137 145          150          155          160
138 Glu

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142 <210> SEQ ID NO: 8

143 <211> LENGTH: 157

144 <212> TYPE: PRT

145 <213> ORGANISM: Homo sapiens

147 <400> SEQUENCE: 8

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148 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Ala Glu Arg Gln Gly Asn
149 1          5          10          15
150 Gly Gln Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile Arg Leu Val
151          20          25          30
152 Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly Leu Gln
153          35          40          45
154 Ile Leu Gly Gln Thr Leu Lys Ala Ser Met Arg Glu Leu Gly Leu Leu
155          50          55          60
156 Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser Ser Ala Val Tyr
157 65          70          75          80
158 Phe Ala Glu Ala Asp Asp Pro Thr Ser Gly Phe Ser Ser Ile Pro Asp
159          85          90          95
160 Ala Phe Trp Trp Ala Val Val Thr Met Thr Thr Val Gly Tyr Gly Asp
161          100         105         110
162 Met His Pro Val Thr Ile Gly Gly Lys Ile Val Gly Ser Leu Cys Ala
163          115         120         125
164 Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile Val Ser
165          130         135         140
166 Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gly Glu
167 145          150          155

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170 <210> SEQ ID NO: 9

171 <211> LENGTH: 164

172 <212> TYPE: PRT

173 <213> ORGANISM: Homo sapiens

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Input Set : E:\425uspc.app.txt

Output Set: N:\CRF4\03202006\J520780.raw

175 <400> SEQUENCE: 9

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176 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Ala Glu Gln Gln Pro Gly
177 1      5      10      15
178 Gly Gly Gly Gly Gly Gln Asn Gly Gln Gln Ala Met Ser Leu Ala Ile
179      20      25      30
180 Leu Arg Val Ile Arg Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser
181      35      40      45
182 Arg His Ser Lys Gly Leu Gln Ile Leu Gly Lys Thr Leu Gln Ala Ser
183      50      55      60
184 Met Arg Glu Leu Gly Leu Ile Phe Phe Leu Phe Ile Gly Val Ile
185 65      70      75      80
186 Leu Phe Ser Ser Ala Val Tyr Phe Ala Glu Ala Asp Asn Gln Gly Thr
187      85      90      95
188 His Phe Ser Ser Ile Pro Asp Ala Phe Trp Trp Ala Val Val Thr Met
189      100     105     110
190 Thr Thr Val Gly Tyr Gly Asp Met Arg Pro Ile Thr Val Gly Gly Lys
191      115     120     125
192 Ile Val Gly Ser Leu Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu
193      130     135     140
194 Pro Val Pro Val Ile Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu
195 145     150     155     160
196 Thr Asp His Glu

```

200 <210> SEQ ID NO: 10

201 <211> LENGTH: 171

202 <212> TYPE: PRT

203 <213> ORGANISM: Drosophila melanogaster

205 <400> SEQUENCE: 10

```

206 Pro Tyr Phe Ile Thr Leu Ala Thr Val Val Ala Glu Glu Glu Asp Thr
207 1      5      10      15
208 Leu Asn Leu Pro Lys Ala Pro Val Ser Pro Gln Asp Lys Ser Ser Asn
209      20      25      30
210 Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile Arg Leu Val Arg Val
211      35      40      45
212 Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly Leu Gln Ile Leu
213      50      55      60
214 Gly Arg Thr Leu Lys Ala Ser Met Arg Glu Leu Gly Leu Leu Ile Phe
215 65      70      75      80
216 Phe Leu Phe Ile Gly Val Val Leu Phe Ser Ser Ala Val Tyr Phe Ala
217      85      90      95
218 Glu Ala Gly Ser Glu Asn Ser Phe Phe Lys Ser Ile Pro Asp Ala Phe
219      100     105     110
220 Trp Trp Ala Val Val Thr Met Thr Thr Val Gly Tyr Gly Asp Met Thr
221      115     120     125
222 Pro Val Gly Val Trp Gly Lys Ile Val Gly Ser Leu Cys Ala Ile Ala
223      130     135     140
224 Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile Val Ser Asn Phe
225 145     150     155     160
226 Asn Tyr Phe Tyr His Arg Glu Thr Asp Gln Glu
227      165     170

```

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230 <210> SEQ ID NO: 11
231 <211> LENGTH: 163
232 <212> TYPE: PRT
233 <213> ORGANISM: Rattus norvegicus
235 <400> SEQUENCE: 11
236 Pro Phe Tyr Leu Glu Val Gly Leu Ser Gly Leu Ser Ser Lys Ala Ala
237 1 5 10 15
238 Lys Asp Val Leu Gly Phe Leu Arg Val Val Arg Phe Val Arg Ile Leu
239 20 25 30
240 Arg Ile Phe Lys Leu Thr Arg His Phe Val Gly Leu Arg Val Leu Gly
241 35 40 45
242 His Thr Leu Arg Ala Ser Thr Asn Glu Phe Leu Leu Ile Ile Phe
243 50 55 60
244 Leu Ala Leu Gly Val Leu Ile Phe Ala Thr Met Ile Tyr Tyr Ala Glu
245 65 70 75 80
246 Arg Ile Gly Ala Gln Pro Asn Asp Pro Ser Ala Ser Glu His Thr His
247 85 90 95
248 Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val Val Thr Met Thr
249 100 105 110
250 Thr Leu Gly Tyr Gly Asp Met Tyr Pro Gln Thr Trp Ser Gly Met Leu
251 115 120 125
252 Val Gly Ala Leu Cys Ala Leu Ala Gly Val Leu Thr Ile Ala Met Pro
253 130 135 140
254 Val Pro Val Ile Val Asn Asn Phe Gly Met Tyr Tyr Ser Leu Ala Met
255 145 150 155 160
256 Ala Lys Gln
260 <210> SEQ ID NO: 12
261 <211> LENGTH: 156
262 <212> TYPE: PRT
263 <213> ORGANISM: Rattus norvegicus
265 <400> SEQUENCE: 12
266 Pro Tyr Tyr Val Thr Ile Phe Leu Thr Glu Ser Asn Lys Ser Val Leu
267 1 5 10 15
268 Gln Phe Gln Asn Val Arg Arg Val Val Gln Ile Phe Arg Ile Met Arg
269 20 25 30
270 Ile Leu Arg Ile Leu Lys Leu Ala Arg His Ser Thr Gly Leu Gln Ser
271 35 40 45
272 Leu Gly Phe Thr Leu Arg Arg Ser Tyr Asn Glu Leu Gly Leu Leu Ile
273 50 55 60
274 Leu Phe Leu Ala Met Gly Ile Met Ile Phe Ser Ser Leu Val Phe Phe
275 65 70 75 80
276 Ala Glu Lys Asp Glu Asp Asp Thr Lys Phe Lys Ser Ile Pro Ala Ser
277 85 90 95
278 Phe Trp Trp Ala Thr Ile Thr Met Thr Thr Val Gly Tyr Gly Asp Ile
279 100 105 110
280 Tyr Pro Lys Thr Leu Leu Gly Lys Ile Val Gly Gly Leu Cys Cys Ile
281 115 120 125
282 Ala Gly Val Leu Val Ile Ala Leu Pro Ile Pro Ile Ile Val Asn Asn
283 130 135 140

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VERIFICATION SUMMARY

DATE: 03/20/2006

PATENT APPLICATION: US/10/520,780

TIME: 12:24:28

Input Set : E:\425uspc.app.txt

Output Set: N:\CRF4\03202006\J520780.raw

L:14 M:270 C: Current Application Number differs, Wrong Format

L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date